FISE Board Math's paper by iftikhar Ahmed
Mathematics
SSC I
SESSION: 2024-2025

Name: _____ **Class/Section:** _____

Time Allowed: 20 Min **Total Marks: /15**

Sections	Section A	Section B	Section C			Total Marks
			Q-3	Q-4	Q-5	
Max Marks	15	36	8	8	8	75
Marks Obtd						

Q.1. Fill the relevant bubble for each part. All parts carry one mark. [/15]

Ser	Question	A	B	C	D	A	B	C	D
1.	If $16 \times 2^m = 2^0$ then what will be the value of m?	-4	-2	0	8	○	○	○	○
2.	If log(x+2) = log(16x -3) then the value of x is	-3	3	$\frac{1}{3}$	$-\frac{1}{3}$	○	○	○	○
3.	Which of the given option represents the scientific notation of 0.000094?	$9.4x10^5$	$9.4x\ 10^{-4}$	$9.4x\ 10^{-5}$	$9.4x\ 10^4$	○	○	○	○
4.	If A = {a,b,c} and B ={1,2} then what are number of binary relation in A x B?	2^2	2^9	2^3	2^6	○	○	○	○
5.	What is the L.C.M of $4x^3y^2 - 8x^2y^3$ & $2x^2y - 4xy^2$?	$4x^2y^2(x-2y)$	(x-2y)	$4x^2y^2$	2xy(x-2y)	○	○	○	○
6.	What is the simplified form of $\frac{4a}{(a+3)(a-4)} - \frac{2}{x-4}$?	$\frac{4a}{(a-4)(a+3)}$	$\frac{2(a-3)}{(a-4)(a+3)}$	$\frac{2a}{(a-4)(a+3)}$	$\frac{6}{(a-4)(a+3)}$	○	○	○	○
7.	Which one is the solution of $\frac{-3x+2}{4} \leq 5$	$x \geq 6$	$x \leq 6$	$x \geq -6$	$x \leq -6$	○	○	○	○
8.	If the navigator gives bearing 90^0, in which direction, should he travel?	South	West	North	East	○	○	○	○
9.	Which of the following is the simplified form of $3\sec^2\theta - 3\tan^2\theta - 3$?	1	0	-1	3	○	○	○	○
10.	Which of the following points is the intersection of medians of a triangle?	centroid	incentre	orthocenter	circumcenter	○	○	○	○
11.	What is the point of intersection of lines? 2x +y =1 =0 & x-y-4 =0?	(0,0)	(4,0)	(1,-3)	(0,-1)	○	○	○	○
12.	Which of the following expression represents the relationship between the slopes m_1 and m_2 of two perpendicular lines?	$m_1m_2 = q$	$m_1m_2 + 1 = 0$	$m_1m_2 - 1 = 0$	$m_1 + m_2 = 0$	○	○	○	○
13.	Which of the following angles represents each internal angle of regular octagon??	60^0	108^0	120^0	135^0	○	○	○	○

14.	The mean of four number is 71.5.If three of the numbers are 58,75,76 and 88, what is the value of fourth number?	80	76	64	60	○ ○ ○ ○
15.	What is the probability of picking an ace from a well shuffled pack of 52 playing cards?	$\frac{1}{52}$	$\frac{4}{13}$	$\frac{1}{169}$	$\frac{1}{13}$	○ ○ ○ ○

Sir Iftikhar

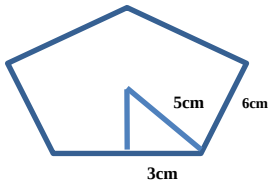
Mathematics SSC-I

Section: B (marks 36)

Q2. Attempt all the parts from the following. All marks carry equal marks

i	Simplify the expression $[(100)^{\frac{1}{2}} \text{ x } (8)^{\frac{2}{3}} + (49)^{\frac{1}{2}} \text{x} (64)^{\frac{1}{2}} + (27)^{\frac{1}{3}} - 7]^{\frac{-2}{3}}$	**OR**	Find x if $2\log_b 4 + \log_b 5 - \log_b 10 = \log_b x$
ii	The H.C.F of two polynomial is $x^2 - 1$ and their L.C.M is $X^4 - 10x^2 + 9$. If one of the polynomials is $x^3 - 3x^2 - x + 3$. find the other.	**OR**	A town has population of 50,000 people. The population is increasing at an annual rate of 6%. If this growth rate continues. In how many years will the town's population reaches 100,000? Where the population growth formula is $P(t) = P_0 e^{rt}$.
iii	Prove the following relation by using the basic trigonometric identities a) $\frac{sinx}{1+cosx} + \frac{1+cosx}{sinx} = 2\text{cscx}$	**OR**	For A = the set of all natural numbers less than 8 B = the set of all prime numbers less than 8 C = the set of even prime number less than 8 then verify that $(A \cap B) \text{ x } C = (A \text{ x } C) \cap (B \text{ x } C)$
iv	If the three angles of triangle are $(x-20)^0$, $(4x+10)^0$, $(2x-20)^0$ then A) Construct an equation in term of x. B) Solve the equation for the value of x. C) Calculate the size of each of the angles.	**OR**	Factorize $(x+5)(x-7)(x-3)(x+1) - 144$
v	Simplify $\frac{x^2-3xy+2y^2}{x^2-2xy+y^2} \div \frac{4x^2-y^2}{6x^2-xy-y^2}$	**OR**	Find the L.C.M of the following: $4(x^4 - 1), 6(x^3 - x^2 - x + 1)$
Vi.	Show that the points A(-1,2) , B(7,5) & C(2,-6) are vertices of a right-angled triangle.	**OR**	Find the ratio of the volumes of two similar solid cylinders of circumference 10cm and 8cm.

vii	Solve the absolute value equation $\left\|\frac{10-x}{2x-5}\right\| = \frac{3}{2}$	**OR**	Find the angle between two lines having slopes of 1 and $\frac{1}{2}$ respectively.
viii	Find the median of the following set of values 40, 35,45,60,50,35,40,45,35,50	**OR**	Find the equation of the line through (-2,-6) and perpendicular to the line $6x + y - 14 = 0$

ix	In a bag with 10 balls, there are 7 red and three blue balls. If one ball is selected at random from the bag, calculate (a) The probability of selecting a blue ball (b) The probability of selecting a red ball	**OR**	Base of a minaret of masjid is built in the shape of regular pentagon as shown in the figure. Find the perimeter and area of a base of minaret. 

Section C(marks 24)

Note: Attempt the following question

3	Transform 3x + 4y = 12 in the following form A) Slope-intercept form B) Point -Slope form C) Two- intercept form D) Symmetric form	**OR**	Determine the HCF of **$a^4 + 3a^3 + 2a^2 + 3a + 1$, $a^3 + 4a^2 + 4a + 1$ and $a^3 + 5a^2 + 7a + 2$ by the division method.**
4	Consider the triangle ABC A(-1,2) B(6, 3) C(2,-4) i. Find the mid point D & E of AB and AC respectively ii. Find d (D , E) and d(B , C0 iii. Find half of d(B, C) iv. Compare the length of DE and BC and draw conclusion	**OR**	Calculate median and mode of the following grouped data. <table><tr><td>**Class Interval**</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td></tr><tr><td>**Frequency**</td><td>5</td><td>10</td><td>20</td><td>15</td><td>7</td></tr></table>
5	The range R of a projectile launched at an angle θ with the Horizontal can be modeled by $R = \frac{v^2 Sin\ 2\theta}{g}$, where v =20m/s is the launch speed, and g =10m/s^2 is the acceleration due to gravity? Using trigonometric identities , convert this model to find the projectile's range for launch angles θ =15^0 , 30^0, 45^0, 60^0. At what angle range will be maximum.	**OR**	Construct the angle bisectors of ΔABC with side measure mAB = 4.5cm, mBC =5.5cm, and mCA=6.5cm.Show that angle bisectors are concurrent. Also, write the construction steps.